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SCOTT SAFETY

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PRE-OPERATIONAL WARNINGS

Please Read Carefully and Fully Understand

This manual is intended for use by personnel who have been trained in the use and care of compressed-air breathing apparatus, and MUST NOT be used as a self-teaching guide by untrained users. Failure to understand or adhere to the **ACS** user instructions may result in injury or death.

Scott Safety has taken great care to ensure that the information in this manual is accurate, complete and clear. However, **Training and Technical Support Services** will be pleased to clarify any points in the manual and answer questions on **Scott Safety** breathing apparatus.

The following warnings are in accordance with certifying authority requirements and apply to the use of breathing apparatus in general:

⚠ **Breathing apparatus users must be fully trained in the use and care of self-contained, compressed-air breathing apparatus.**

⚠ **Ensure that the selection of the apparatus type is sufficient for the tasks being undertaken and the hazards likely to be encountered. Please refer to National Regulations for guidance.**

⚠ **Adequate protection may not be provided in certain highly toxic atmospheres.**

⚠ **The apparatus must be tested and serviced in accordance with Section - Scheduled Maintenance and the notes in Section - Personnel Training and Servicing.**

⚠ **The quality of air used to supply and charge breathing apparatus must meet the requirements of EN 12021 : 1999. See Section - Introduction for details.**

⚠ **Ensure that a good seal can be obtained between the face and facemask. The wearing of beards, side-burns or spectacles may adversely affect the sealing of a facemask to the wearer's face.**

⚠ **The apparatus is not designed for use underwater.**

⚠ **The harness must not be used as a vehicle seat restraint.**

DISCLAIMER

Failure to comply with these instructions or misuse of the apparatus may result in: death, injury or material damage, and invalidate any warranty or insurance claims.

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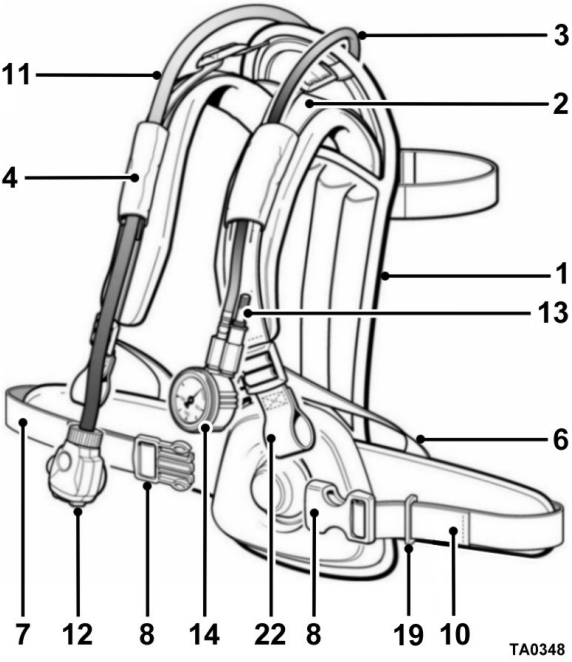
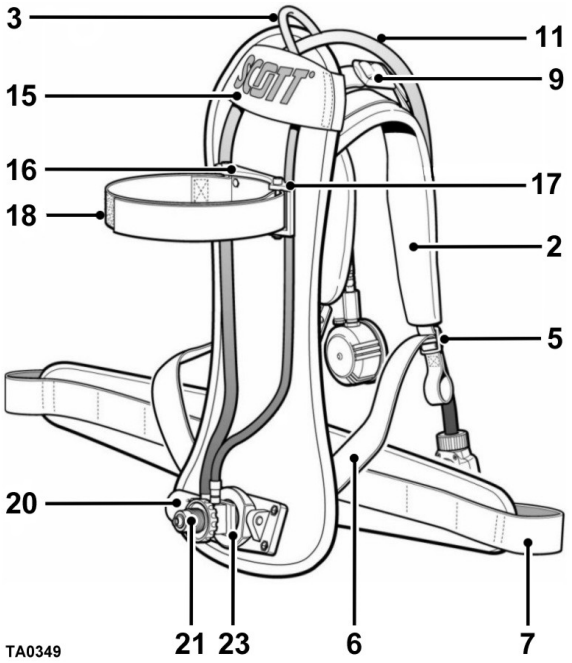
INTRODUCTION
GENERAL ASSEMBLY DIAGRAMS





KEY:

1	Back-pad
2	Upper Shoulder Strap
3	High-pressure Hose
4	Front Hose Retaining Flap
5	Shoulder Strap Adjustment Buckle
6	Lower Shoulder Strap
7	Waist-belt
8	Waist-belt Buckle
9	Upper Shoulder Strap Buckle
10	Waist-belt Adjusting Strap
11	Medium-pressure Hose
12	Demand Valve
13	Warning Whistle
14	Pressure Gauge
15	Rear Hose Retaining Flap
16	Cylinder Cradle
17	Hose Retaining Clip
18	Cylinder Band
19	Waist-belt Loop
20	Pressure Reducer
21	Cylinder Connector
22	Lower Shoulder Strap Loop
23	Reducer Mounting Bracket

BREATHABLE AIR

Air used to supply or charge breathing air may be natural or synthetic and must comply with EN 12021 : 1999 or AS/NZS1715 : 1994.

COMPRESSED-AIR AIRLINE SUPPLIES

Air for use with compressed-air airlines must conform to EN 12021 : 1999 or AS/NZS1715 : 1994 and must have a dew-point sufficiently low to prevent internal freezing when the apparatus is used in temperatures below 4°C.

PERSONNEL TRAINING

Personnel who use self-contained, compressed-air breathing apparatus must be fully trained in accordance with these instructions and national regulations.

These instructions cannot replace an accredited training course run by fully qualified instructors in the proper and safe use of **Scott Safety** breathing apparatus.

SERVICING

ACS must be serviced at scheduled intervals by personnel who have completed a formal training course and hold a current certificate for the servicing and repair of **Scott Safety** breathing apparatus. Details of the servicing schedule are contained in the **Scott Safety ACS** Service Manual, copies of which can only be obtained by registered holders of a current certificate.

Your distributor or **Training and Technical Support Services** at **Scott Safety** will be pleased to provide training course details and quotes for service contracts.

SPARE PARTS AND ACCESSORIES

Customer Services provide an efficient, friendly, customer contact point for ordering new apparatus, spare parts and accessories. The team can also provide general information on **Scott Safety** products.

WARRANTY

The products manufactured at our factories in Skelmersdale carry a warranty of 12 months (unless stated otherwise) for parts, labour and return to site. The warranty period runs from the date of purchase by the end user.

These products are warranted to be free from defects in materials and workmanship at the time of delivery. **Scott Safety** will be under no liability for any defect arising from wilful damage, negligence, abnormal working conditions, failure to follow the original manufacturer's instructions, misuse or unauthorised alteration or repair.

Evidence of purchase date will need to be provided for any claims arising during the warranty period. All warranty claims must be directed through **Customer Services** and in accordance with our sales return procedure.

APPARATUS DESCRIPTION

GENERAL

ACS is an open circuit, self-contained, compressed-air Breathing Apparatus (BA) for use in marine and industrial applications where a high level of respiratory protection is required.

The **ACS** harness is made from a flame-retardant **Kevlar**™ blend. A mechanical pressure gauge and whistle are mounted on the left-hand shoulder strap.

For enhanced wearer comfort, padded shoulder straps and waist-belt are featured as standard on **ACSi** versions.

ACS is approved to the following International Standards:

EN 137 : 2006 - Including Annex A, Self-contained Breathing Apparatus classification: Type 2 - Fire Fighting;

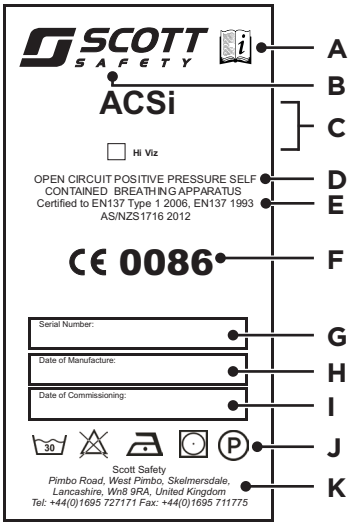
AS/NZS1716.

ACS is 'CE' marked in accordance with EEC Directive EC/686/1986 plus amendments.

NOTIFIED BODY:

BSI (0086)
Kitemark Court,
Davy Ave,
Knowlhill,
Milton Keynes,
MK5 8PP.
England

ACS is marked in accordance with EN 137 : 2006 and AS/NZS1716 : 2012. An explanation of those markings is given below:



Key	Meaning
A	Symbol - Refer to User Instructions
B	Product brand name
C	Product model / designation i = Industrial m = Marine
D	Apparatus description
E	Standards to which apparatus is certified
F	Number of Approval Body
G	Serial number of apparatus
H	Date of manufacture
I	Date apparatus commissioned
J	Care instructions for apparatus
K	Contact details of manufacturer

FACEMASKS

ACS is approved for use with **Vision 3, PanaSeal, PanaVisor** and **Promask PP** full facemasks, all of which conform to EN 136, Class 3.

All are available with a five-point, fully-adjustable web harness or net head-harness and neck-straps.

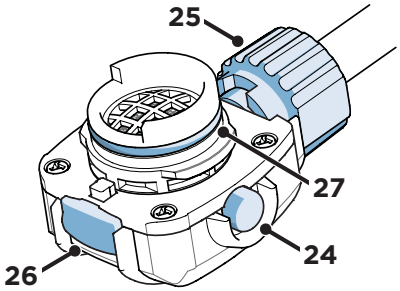
Impact resistance of the polycarbonate visors conforms to EN 166 Grade B and AS/NZS 1337 : 1992.

DEMAND VALVE (DV)

The DV operates in conjunction with the exhale valve in the facemask to maintain a positive pressure within the facemask.

The DV has a reset button that enables wearers to close the airflow through the DV, allowing the facemask to be removed without loss of cylinder air.

When the apparatus is donned the DV is normally 'reset' (closed), and is opened (activated) when the wearer takes a first breath.



Main components:

24	Reset Button
25	Bypass Knob
26	Locking Catch
27	Outlet Port O-Ring

REDUCER/CYLINDER VALVE CONNECTOR

The combined pressure reducer and cylinder valve connector reduces high air-pressure from the cylinder to a medium pressure of between 5 and 9 bar.

Connection to a cylinder is made by the threaded hand-wheel on the cylinder valve connector which locates within the cylinder valve. Please refer to Section - Replacing Single Cylinders for further details.

Main components:

28 Connector Hand-wheel

29 Connector O-Ring

PREPARATION FOR USE

CHECK APPARATUS

Visually inspect to ensure that **ACS** is clean and in good condition. Check that all hose retaining flaps (4) and (15) are closed. Fully slacken the waist-belt and shoulder straps ready for use.

When **ACS** is to be used with an airline check that:

- The airline is in good condition and free from splits, bulges and abrasions.
- The airline connector is in good condition and that it connects securely to the **ACS** airline manifold.
- The air-supply conforms to EN 12021 : 1999 or AS/NZS1715 : 1994 (see Section - Breathable Air).
- The **ACS** airline coupling is in good condition.

REPLACING SINGLE CYLINDERS

Close the cylinder valve.

Open the DV bypass knob (25) to vent the system.

Unscrew the cylinder connector hand-wheel (28).

Separate the **Velcro**™ cylinder band (18) to release the cylinder. Remove the cylinder by sliding it in either direction.

Slide a fully-charged cylinder through the opened cylinder band (18). Position the cylinder valve outlet onto the connector and tighten the hand-wheel (28).

CAUTION:
Before tightening the hand-wheel into the valve port, check that the hand-wheel connector O-Ring (29) and threads on the connector are clean and in good condition.

Take up the slack on the **Velcro**™ cylinder band (18).

Fasten the **Velcro**™ cylinder band (18).

Note: Should it become necessary to adjust the **Velcro**™ cylinder band, repeat operations above until the cylinder is securely retained in position.

RESET DEMAND VALVE (DV)

Press the reset button (24) on the side of the DV and check that the bypass knob (25) is turned so that the flat on the bypass knob aligns with the DV outlet.

Check that the O-Ring (27) on the DV outlet is clean and in good condition.

CYLINDER PRESSURE/ LEAK TEST

Slowly open cylinder valve fully and allow 10 seconds for the apparatus to pressurise.

Check that the pressure gauge (14) shows the cylinder is at least 80% FULL (240 bar for 300 bar cylinders, 170 bar for 200 and 207 bar cylinders). Listen for leaks.

Close the cylinder valve and monitor the pressure gauge for one minute. If the reading falls by more than 10 bar during this time, there is an unacceptable leak.

If the system fails the leak test: close the cylinder valve, vent air from the system by opening the DV bypass knob (25). Check all pneumatic connections and repeat the leak test.

WARNING:
DO NOT use apparatus that leaks excessively. Attach an explanatory note and return the apparatus for servicing.

DV AND FACEMASK

Check that the facemask is clean and undamaged.

Fit the DV to the facemask and check that the locking catch (26) engages fully. Twist the DV gently to confirm that it has.

HOSES

Check all hoses for damage and excess wear. Flex hoses to reveal any splits, cracks or crazing (minor crazing is acceptable).

Check any couplings for damage and excess wear; and ensure that they can be opened.

When closed, check that they form a secure coupling.

Replace damaged or worn hoses.

DONNING PROCEDURE, PRE-USE AND MONTHLY CHECKS

DON APPARATUS

Note: Specialist Users may operate alternative donning procedures that conform to the relevant statutory regulations and have been approved by **Scott Safety**.

Check that the **ACS** and facemask harnesses are fully slackened and that the DV is connected to the facemask.

Hang the facemask around the neck by its neck-strap.

Pass the right arm through the shoulder strap (2), swing the back-pad (1) across the back and slip the left arm through the opposite shoulder strap (2).

Fasten the waist-belt buckle (8).

Pull the ends of the waist-belt adjusting straps (10) forward until secure and comfortable on the hips.

Pull down on the lower shoulder strap loops (22) until the apparatus fits comfortably.

CHECK DV/OPEN CYLINDER VALVE

Check that the flat on the DV bypass knob (25) aligns with the DV outlet and press the reset button (24).

Open the cylinder valve slowly with your right hand, whilst holding the pressure gauge (14) in your left. Check that the pressure gauge reads 80% FULL (170 bar for 200 and 207 bar cylinders and 240 bar for 300 bar cylinders).

DON FACEMASK

Facemasks with a Web Harness

Hold the head-harness lower straps, place chin into the chin-cup and pull straps over the back of the head, brushing hair away from face-seal.

Adjust the facemask top strap so that the mask is at the correct level with the face and the head-harness pad is in the centre of the back of the head. Tighten harness straps in sequence: **Bottom, Middle, Top**. DO NOT OVER-TIGHTEN.

Inhale deeply to activate the DV. Breathe normally.

Facemasks with a Net Harness

Hold the mask by the side of the net harness, place the chin into the chin-cup and pull the mask onto the face. Grasp the pull-strap at the rear of the net harness and pull the net over the head.

Tighten harness side straps. DO NOT OVER-TIGHTEN.

Inhale deeply to activate the DV. Breathe normally.

POSITIVE-PRESSURE TEST

With the cylinder valve open, insert a finger under face-seal and check for a steady outward flow of air. Remove finger and allow mask to re-seal.

FACEMASK SEAL TEST

Close the cylinder valve and continue to hold the hand-wheel. Hold breath for 10 seconds and listen carefully for leaks. A leak will cause the pressure gauge reading to fall.

If the facemask fails the leak test: open the cylinder valve, loosen the head-harness adjust the facemask and repeat the test.

WHISTLE TEST

With the cylinder valve still closed, slowly breathe down the air from the system. Check that the whistle (13) sounds clearly as the pressure gauge falls to 55 bar (±5 bar).

Once the whistle has sounded, open the cylinder valve fully.

WARNING:
DO NOT use apparatus that fails this test. Attach an explanatory note and return for servicing.

FINAL CHECKS

Check that the cylinder valve is fully open and that the pressure gauge (14) shows that there is sufficient air.

Turn on the DV bypass knob (25) and check for a steady flow of air into the mask. Close the DV bypass knob.

AIRLINE ATTACHMENTS

Check the supply airline flow and pressure. Remove connector dust caps and check for wear and damage.

Make connection to an appropriate connector capable of supplying breathable compressed air (see Section - Compressed-Air Airline Supplies).

WARNING:
Airlines should be at least 15 metres long.
Use anti-static hoses in flammable or explosive atmospheres.
Close cylinder valve while breathing from the airline.

Check that the connection is secure and that the connector releases easily, without sticking.

Press the DV reset button (24).

Pressurise the attachment and check all connections for leaks. Ensure that the female connector on the airline attachment does not leak.

WARNING:
DO NOT use attachments that show signs of excessive wear or damage, or that leak excessively.

Replace dust caps.

DOFFING INSTRUCTIONS

DOFFING THE APPARATUS

WARNING:
DO NOT remove apparatus until well clear of the hazardous area.
If wearing a gas-tight chemical suit, DO NOT remove until decontamination procedures are complete.
During extended de-contamination procedures, connect an airline to the Airline attachment.

Hold breath and press the DV reset button (24).

Release the head-harness by pulling the harness buckles forwards. Remove the mask and let it hang from the neck strap.

Pull the cylinder valve hand-wheel and turn to close the cylinder valve. Alternatively, release the hand-wheel locking mechanism and close the cylinder valve.

Open the DV bypass knob (25) to depressurise the system. Turn the bypass to OFF.

Release the waist-belt buckle (8).

Slacken shoulder straps by pulling upwards on the adjustment buckles (5).

Doff the apparatus.

REMOVE CYLINDER

Close the cylinder valve and vent the pneumatics by opening the bypass knob (25). Unscrew cylinder valve connector hand-wheel (28).

Separate the **Velcro**™ cylinder band (18) and remove the cylinder - (see Section - Replacing Single Cylinders of this Manual). Mark the cylinder as empty, store separately from charged cylinders and return for charging.

AFTER USE

ACS must be cleaned and tested as detailed in the following instructions.

CLEANING

CAUTION:
DO NOT immerse the pressure reducer (20) and pneumatics assembly in liquids.
USE ONLY the specified methods and materials. DO NOT use bleach, solvent, detergent or abrasive cleaners.
Dry thoroughly away from direct heat and sunlight prior to storage.

Facemask

Disconnect the DV from the facemask.

Wash and disinfect the mask thoroughly in a solution of **Distel** and warm water (see following note).

Rinse the mask thoroughly in clean running water. Pay particular attention to flushing out the exhale valve.

Hang the mask by its neck-strap and allow to dry thoroughly, away from direct heat or sunlight.

When dry, wipe facemask seals with **Distel** disinfectant wipes.

Polish the visor inside and out with a clean, lint-free cloth and slacken the head-harness, ready for use.

Note: Distel liquid and **Distel** disinfecting wipes are available from **Scott Safety**.

Demand Valve (DV)

CAUTION:
DO NOT immerse the DV in liquids.

Fit the yellow cap on the DV outlet.

If required, use a small brush (eg toothbrush) and a mild solution of soap and warm water to clean around the locking catch (26) and bypass knob (25).

Clean the valve body using a lint-free cloth moistened in a mild solution of soap and warm water. DO NOT store apparatus until completely dry.

Operate the DV locking catch (26) and bypass knob (25) several times and ensure that they move freely. If either is not free-moving, attach explanatory note and return for servicing.

Harness and Back-pad

Check that the harness webbing and fittings are not worn or damaged; and that buckles and fastenings are fully operational. Apparatus with major defects must be returned for servicing, with an explanatory label attached.

The harness and back-pad can be sponged clean with a mild solution of soap and warm water or, following removal of the pneumatics can be manually cleaned in a bath containing cleaning or disinfecting solutions or machine-washed to the following care instructions:

To remove the pneumatics, release the hoses from all hose retaining flaps (4) and (15) and remove from hose retaining clips (17) on the cylinder cradle (16).

Turn the reducer (20) through 90 degrees and remove complete pneumatics from the reducer mounting bracket (23).

CAUTION:
Do not attempt to remove the pneumatics with the hose still retained.

When the harness and back-pad are completely dry, re-fit the pneumatics.

Locate the reducer into the mounting bracket and turn through 90 degrees so that the hoses face towards the top of the back-pad.

Clip the hoses into the retaining clips at the side of the cylinder cradle.

Secure the hoses with the hose retaining flaps ensuring that the high-pressure gauge, whistle and hose is on the left-hand shoulder strap and the medium-pressure hose and DV is on the right-hand shoulder strap.

STORAGE - READY FOR USE

Device must be protected from damage during transportation.

Fully extend the shoulder straps, waist-belt and facemask head-harness.

The apparatus must be stored in a clean, dry environment away from direct heat and sunlight. Storage temperature should not exceed -10°C to +40°C.

RECORD TEST DETAILS

Record test details in accordance with local regulations in a Breathing Apparatus Logbook (available from **Scott Safety**).

Information recorded usually includes:

Name and address of employer responsible for the apparatus.

Make, model number or mark description of any distinguishing features, sufficient to enable clear identification.

The date of the examination together with the name, signature or unique authentication mark of the examiner.

The condition of the apparatus and details of any defects found and any remedial action taken, including any airline supply equipment used with the apparatus.

Cylinder air pressure.

SCHEDULED MAINTENANCE

MONTHLY

Test **ACS** in accordance with the instructions given in Section - Preparation For Use and Section - Donning Procedure, Pre-Use And Monthly Checks of this Manual. Record test details in the apparatus' BA Logbook. This record is mandatory in the UK and most EC countries; and must be kept up to date and available for inspection. Please see Section - Record Test Details for details.

ANNUALLY

ACS must be returned for a workshop service annually and for a major workshop service at six-yearly intervals.

After each workshop service, perform the user checks detailed in Section - Preparation For Use and Section - Donning Procedure, Pre-Use And Monthly Checks of this Manual prior to returning **ACS** to service.

Check that workshop service details have been recorded in the apparatus' BA Log.

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